Rural Nonfarm Employment: The Recent East Asian Experience

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I. Introduction

The economic development strategies pursued in many low income countries have placed primary emphasis on large-scale, capital-intensive activities in both the agricultural and nonagricultural sectors. Small-scale, labor-intensive farm and nonfarm firms have frequently been overlooked, at best, and in many cases have suffered discrimination from policies and programs which favor larger-scale activities. Some support for this large industry strategy can be found in economic development theory, but the shortcomings are also becoming increasingly apparent.

In the first section of this paper, some of the recent evidence on the importance of small-scale firms and rural nonfarm enterprises is summarized. The demand for labor in such activities is stressed. In the second section, the importance of off-farm work for farm households is discussed, and the main microeconomic factors which affect the supply of off-farm work are also treated. Results of an analysis of off-farm work by Taiwanese farm households are presented. Off-farm work by farm households is frequently with small-scale firms and other rural nonfarm activities. An argument will be made that a strategy to expand rural nonfarm activities may significantly improve the incomes of low income farm families by increasing opportunities for off-farm work. Such a strategy may be more successful at reducing rural poverty than the current emphasis on increasing farm productivity. The paper ends with a discussion of policies and programs which low income countries could pursue to strengthen the small-

scale nonfarm sector. Evidence drawn from research in Asian countries provides empirical support for these arguments.

II.   The Case for Small-scale Firms and Rural Nonfarm Enterprises

The classical two sector growth model, presented first by Lewis (1954) and later refined by Ranis and Fei (1961), focuses on the process of labor absorption in a labor surplus economy. The model analyzes the process of growth in a dual economy composed of a capitalist and a subsistence sector. The capitalist sector uses reproducible capital, pays capitalists for its use, and employs wage labor for profit. Conversely, the subsistence sector uses no reproducible capital, largely uses family labor, and the marginal productivity of labor may be zero in many cases. Output is shared through institutional means even though the marginal product of some workers is below the average product received. As growth occurs, the capitalist sector is assumed to create new employment opportunities through investment and capital accumulation. Labor supply in the subsistence sector is considered unlimited in the sense that additional laborers are available to the capitalist sector at existing wage rates. This labor pool enables new firms to be created or old firms to expand without encountering labor shortages. Eventually, the surplus labor is exhausted and the two sectors begin to compete for labor at rising wage rates. Nugent (1977) noted the model implies that "the inequality in the distribution of labor income (though perhaps not overall income) will be reduced and indeed eliminated. It is a perfect strategy for success which insures that economic development will be a smooth, equilibrating process typified by continuous marginal adjustments."

For policy purposes, the model suggests accelerating the growth and expansion of large-scale industrial firms in order to absorb more labor. Furthermore, these firms are expected to have growth potential because they make products with a high income elasticity of demand, while agriculture and the small-scale traditional industries are expected to face low demand elasticities. Thus many countries have employed policies biased towards large-scale firms. Cridit is supplied at highly subsidized interest rates, and scarce foreign exchange is provided through multiple exchange rate schemes or import licensing. Foreign assistance, which can be conveniently justified through this model to relax capital and foreign exchange constraints, is frequently channeled to these firms.[1] Technical assistance from both foreign

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1   Mellor (1976) presents a perceptive analysis of how U.S. foreign assistance to India in the 1950's and 1960's fit conveniently into Indian objectives to push capital-intensive projects. Tendler (1975) makes a similar argument for foreign aid generally.

and domestic sources is largely focused on this sector.

With the benefit of hindsight, some of the problems currently faced in law income countries should have been anticipated as a logical outcome from this policy bias. Oshima (1971), Ho (1972) and Ho and Huddle (1975) have noted several of these problems: (1) slow growth in employment, (2) geographic concentration of economic activities, (3) increased concentration in income distribution, (4) failure to properly invest in agriculture, and (5) failure to exploit a comparative advantage in the export of labor-intensive goods. These problems have prompted a reevaluation of the large-scale, capital-intensive development strategy and a new strategy is emerging placing greater emphasis on small-scale firms, rural nonfarm activities and farm / nonfarm linkages. Some examples follow. Ho and Huddle (1975) focus on employment generation through small-scale, traditional industries typically closely related to agriculture which produce "handmade goods, artistic products, and other products with a cultural character." Oshima (1971) argues for a three-sector model by distinguishing between capital-intensive and labor-intensive activities in the nonagricultural sector. Mellor (1977), Johnston and Kilby (1975), and Child and Kaneda (1975) emphasize the linkage between firms providing inputs and services to farms when the agricultural development strategy is oriented toward broad participation by small firms using resources and technologies consistent with a country's resource endowment. Anderson and Leiserson (1978) analyze the role of all rural nonfarm activities including manufacturing construction, utilities, commerce, transport and services. Many of these researchers have focused on Asian experiences, especially the success of Japan and Taiwan in wedding farm and nonfarm growth and development.

Employment is a central theme in many for these studies. Anderson and Leiserson (1978) found 20 to 30 percent of the rural labor force primarily engaged in nonfarm work in many countries. The share was reported at 51 percent in Taiwan in 1966, 40 percent in the Philippines in 1970, and 25 percent in South Korea, also in 1970. Oshima analyzed the importance of small-scale firms in the nonagricultural sectors. In the Philippines in 1961, firms engaging fewer than ten persons comprised 93 percent of the employment in construction, 94 percent in commerce, 76 percent in manufacturing, 64 percent in transport and communications, and 95 percent in services. In Taiwan in the same year, this same size of firm comprised 95 percent of employment in commerce, 58 percent in transport, 93 percent in services, and 46 percent in manufacturing. A similar pattern emerged in South Korea, Thailand, the Philippines and in Tawian when manufacturing firms were analyzed. These results show that rural nonfarm activities represent a substantial share of total nonfarm employment Small-scale firms represent the largest share of total

employment in several industries.

Small firms offer greater opportunities for less educated labor. For example, Oshima found in South Korea that 19 percent of all persons employed in manufacturing units with five to nine persons were proprietors and family members compared to 9 percent for units with 10 to 19 persons and to zero for units with 100 or more persons. Family members were a large share of total employment in small firms in the Philippines and Thailand as well. Data were not available regarding education but it is likely that persons employed in small firms are among the least educated in the nonagricultural sector. Thus, they are employed without large investments in human capital frequently required to meet the minimum skill threshold required by larger firms.[2] Their employment improves income distribution in the non-agricultural sector even though small-scale firms pay lower average wages than larger units. As will be shown in the next section, income distribution in the agricultural sector is also improved because many low income farm households earn substantial amounts of income from various rural nonfarm activities.

The use of capital by firms is another feature discussed in much research. Oshima found that small-scale firms were less capital-intensive than larger units in Taiwan, Thailand, and South Korea. He argued further that much of the capital is home produced and as such does not represent a drain on financial markets. Likewise, many of the raw materials used in buildings and equipment are indigenously produced so foreign exchange demand is less and much of the capital stock is secondhand equipment of larger units which would have little use if not employed by small firms.

The geographic dispersion of small-scale firms is reported to be greater than larger units. Oshima reports that the 1961 Philippine Census shows only one-fifth of the persons employed in small firms were located in metropolitan Manila compared to one-half for large units. Likewise, the 1966 South Korean Census reported only 17 percent of the workers employed in units with less than ten employees worked in Seoul.

Small-scale nonfarm firms have significant linkages with agriculture. These firms are concentrated in the food, clothing, wood products, and other industries which purchase large amounts of raw materials produced by the farm sector. Johnston and Kilby argue

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2 Lee (1976) reports on the characteristics of migrants in Korea. There is a direct relationship between educational achievement and propensity to migrate. He argues that this relationship is due to a greater urban-rural income disparity and a higher probability of obtaining regular wage employment for these migrants.

that the greatest demand for these types of products comes from lower income landless workers and farmers. Other nonfarm firms, such as those studied in West Pakistan by Child and Kaneda, produce engines, pumps and other farm machinery, while others provide machinery repair, blacksmithing and other services to farmers. In countries where a labor-intensive agricultural development strategy is employed, local nonfarm firms are more likely to provide most of the necessary inputs. Thus there are signficant product and labor market linkages amongst labor-intensive farm and nonfarm firms. These linkages are less significant at the local level when a capital-intensive strategy is employed and many agricultural inputs are imported.

Finally, there is some evidence of export potential by small-scale firms. Some researchers like Tyler (1976) argue that industrialization and export of manufactured goods is unlikely to increase labor absorption in low-income countries. Ho and Huddle are more optimistic, however, based on their research on 81 commodities that: (1) were produced or producible by small-scale, traditional industries, and (2) were traded or tradable on the international markets. All were goods with a high labor content. Using import data from the U.S. and fifteen OECD countries, they found import demand elasticities far above unity and the rate of expansion in trade of these commodities from 1964 to 1970 was slightly higher than all manufactured goods. They argue mass-produced consumer goods lose their appeal as middle income consumers become more affluent, whereas handmade, nonstandardized goods reflecting cultural character become more appealing. Thus, although the demand for manufacturing goods generally may be problematic, this subset of firms has market potential.

To summarize, the literature cited shows that small-scale firms and rural nonfarm activities employ a substantial amount of labor, while using modest amounts of capital and foreign exchange. The geographic dispersion of such activities reduces interregional inequalities, and income distribution is improved as low-income, unskilled labor, frequently unsuited for larger firms, is employed. Important linkages exist between small farm and nonfarm firms in product and labor markets. Export potential exists, at least for a specific subset of firms. Thus, the small-scale sector has important advantages frequently overlooked in the large-scale, capital-intensive development strategy followed in many countries. Increased attention to the small-scale sector could result in greater employment opportunities for those migrating from agriculture. But, in addition, it could provide more off-farm opportunities for those who choose to stay on the farm and supplement family income with off-farm work.

III. Off-farm Employment of Members of Rural Households

Microeconomic analysis of farm households has traditionally focused on farm production. Recently, evidence has been presented that off-farm activities frequently generate a substantial share of total household income, especially among small farmers. Thus, increased rural employment opportunities could make an important contribution to rural incomes, providing rural households can increase their supply of off-farm labor. This section discusses the importance of off-farm income to the farm household, and presents the results of an empirical test of off-farm labor supply in Taiwan where off-farm income has become very important.

Importance of Off-farm Work

Growth in the nonfarm sector has created new economic opportunities for rural households in some Asian countries. In Japan, Taiwan and Korea where small farms predominate, rural households unable to increase their income through increasing farm size or productivity have boosted their real incomes through off-farm employment. In Japan, off-farm income grew from 50 percent to 71 percent of average rural household income between 1960 and 1975. In the same period, the share grew from 13 to 43 percent in Taiwan, and represented about one fifth of Korean rural household income.

According to the data in Table 1, all farm size groups have substantially increased their income through off-farm work in Korea, Taiwan and Japan during the 1960 to 1975 period. As can be noted, however, off-farm work benefits the small farmers more than the large farmers. Off-farm income represents 50 to 90 percent of rural household income on farms with less than one-half hectare of land, whereas on farms over two hectares it represents 15 to 30 percent of household income. It appears that off-farm work has had an impressive, positive impact on the poverty problems of rural areas in these countries.

A Microeconomic Model of Off-farm Work

The impact of off-farm employment opportunities on rural households will depend on their off-farm labor supply response. Efforts have been made by Polzin and MacDonald (1971), Heady and Tweeten (1963), Misawa (1970), Yu (1969), Mizoguchi (1970), Hu (1975), and Larson and Hu (1977) to identify the main microeconomic factors affecting the supply of off-farm work. These studies identified the main factors as: (1) the money wage rate of off-farm work, (2) the commuting cost of off-farm work, (3) net farm income, (4) number of adults per household, (5) farmers' education level, (6) farm size, (7) degree of farm mechanization, and (8) consumption patterns.

The theory of labor allocation focuses on the equilibrium between on and off-farm work as shown in Figure 1. Assuming the individual

Table 1. Off-farm Income as a Percent of Rural Household Income by Farm Size Groups in Korea, Taiwan and Japan, 1960, 1965, 1970 and 1975

Year	KOREA Farm Size in Cheongbo[a] Less Than 0.5	1.0 to 1.5	Over 2.0	TAIWAN Farm Size in Chia[b] Less Than 0.5	1.0 to 1.5	Over 2.0	JAPAN Farm Size in Cho[a] Less Than 0.5	1.0 to 1.5	Over 2.0
					Percent				
1960	38[c]	14[d]	10[c]	20	19	8	80	33	17
1965	41	16	10	35	18	12	84	49	2I
1970	49	17	15	52	26	20	92	54	32
1975	42	13	8	70	44	26	93	58	32

[a]One cheongbo or Cho equals 0.9917 hectares or 2.45 acres.

[b]One chia equals 0.97 hectares.

[c]Data for 1962, since 1960 data are not available.

SOURCES: Republic of Korea, Ministry of Agriculture and Fisheries; Provincial Government of Taiwan, Department of Agriculture and Forestry; Japan, Ministry of Agriculture and Forestry.

NOTE: Nonfarm income includes wage and salary incomes received from off-farm employment, net income from non-farm self-employment, and other incomes.

farmer is a price taker in the non-farm labor market; i.e., he faces a labor market with an infinite elasticity of demand, the equilibrium point is determined by the net wage rate of nonfarm labor, total family productive labor and net farm income. Given these three curves, maximum total labor revenue, E, is determined when the net nonfarm wage rate equals the marginal net farm income. Therefore,

(1) $NR = W_n L_n + g(L_f/F)$

(2) $\overline{L}_t = L_n + L_f$

where

NR = total household labor income

$\overline{W}_n$ = net nonfarm wage rate

$g(L_f/F)$ = net farm income to labor given other factors fixed

$\overline{L}_t$ = total farm household labor

L_n = off-farm labor

L_f = on-farm labor

Substituting (2) for L_n in (1) gives: (3) $NR = \overline{W}_n(\overline{L}_t - L_f) + g(L_f/F)$

Set the derivative of NR=0

(4) · $\dfrac{dNR}{dLf} = -W_n + g'(L_f/F) = 0$

such that:

(5) $W_n = g'(L_f/F)$ or the net nonfarm wage rate equals the marginal net farm income when NR is maximum.

Given a total labor supply line, Lt, and net farm income curve, $g(L_f/F)$, the supply of off-farm labor is expected to vary directly with net nonfarm wages, W_n. An increase in W_n, *ceteris paribus*, increases the slope of the wage line causing the farmer to increase off-farm work and decrease farm work. Conversely, an increase in commuting costs lowers the net nonfarm wage causing a decrease in off-farm work.

Assuming that the net nonfarm wage line, W_n, and the net farm income curve, $g(L_f/F)$, are fixed, the off-farm labor supply can be expected to vary directly with total labor supply, L_t. For example,

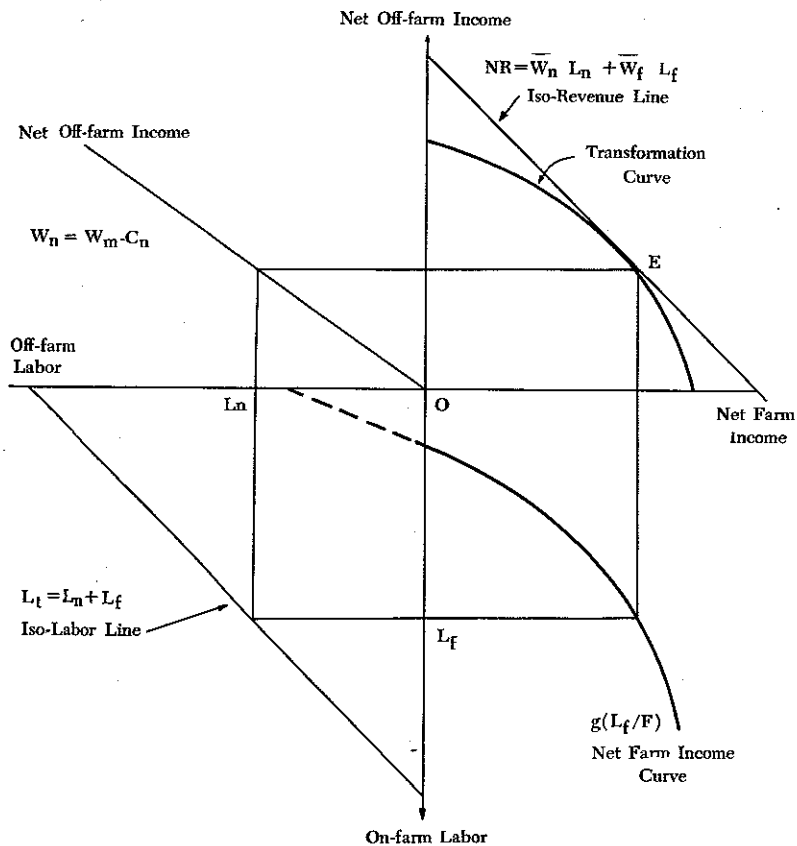if L_t increases, the off-farm labor supply will increase but the on-farm labor supply does not change.

Figure 1

The Equilibrium Between On-farm and Off-farm
Labor Supply and Farm/Nonfarm Income

In a similar manner, assuming that W_n, net nonfarm wages and L_t, total labor supply remain the same, farm mechanization permits higher levels of on-farm income for the same labor input releasing labor for off-farm work. However, increasing farm size shifts the net farm income curve outward causing on-farm labor to increase and off-farm labor to decrease. Shifts from fruit and vegetable production to less labor-intensive farm enterprises like rice will decrease on-farm labor demand and increase the off-farm supply.

Equation (6) summarizes the formal specification of the model as follows:

(6) $L_n = f(W_n/I, C, S, A, M_h, N_f, D_i, U)$

where $\partial L_n / \partial (W_n/I) > 0$, $\partial L_n / \partial C < 0$, $\partial L_n / \partial S > 0$

$\partial L_n / \partial A > 0$, $\partial L_n / \partial M_h > 0$, $\partial L_n / \partial N_f < 0$ and $\partial L_n / \partial D_i \gtrless 0$

Labor Supply Response in Taiwan

This theoretical model was tested using Taiwanese data obtained from the 1973 farm records of 329 farm families distributed in the eight agricultural regions. The Taiwan Provincial Department of Agriculture and Forestry collected the data as part of a farm record-keeping project. Households voluntarily recorded their economic activities daily and supervisors regularly checked the information so the data are quite reliable.

The definitions of the variables used and their respective means and standard deviations are shown in Table 2. The mean number of man-days worked off-farm was 308 in 1973 and net farm income averaged NT$58,088. The number of adults per household was 4.74; and they had completed an average of 6.93 years of school. The average farm size was 1.54 hectares, mostly owned land. Half the farms specialized in rice production, while livestock is the next most important enterprise.

The distribution of off-farm work by farm size groups is shown in Table 3. The off-farm work days ranged from less than 100 to more than 700 anually. Only 7 percent of the household members worked 700 or more man-days off-farm in 1973. About one-fourth of the household members worked less than 100 man-days off-farm. Slightly more than one-fourth worked from 100-299 and another one-fourth worked from 300-499 man-days off-farm. Households owning less than 2.0 hectares clearly worked off-farm more than those with larger farms.

As shown in Table 4, the coefficient of W_n/I, the ratio of daily nonfarm wages to net farm income, is significant and has the expected sign. An increase in off-farm wages relative to net farm income is associated with an increase in off-farm work. The supply elasticity is quite inelastic however, a 10 percent change in the ratio causes a change of only 0.5 percent in off-farm labor supply.

Sample farms were subdivided into "comparatively large" and "comparatively small" farms to estimate the off-farm labor supply function for the two groups. The "comparatively small" farmers worked

Table 2. Mean and Standard Deviation of Each Variable for the
Total Sample of Taiwanese Farm Households, 1973

Variables	Symbols	Unit	Mean	Standard Deviation
Off-farm Labor Days in 1973	(L_n)	Man-days	308. 40	238. 37
Daily Nonfarm Wages in 1973	(W_n)	NT $	91. 22	12. 18
Net Farm Income in 1973	(I)	NT $	58, 088. 83	46, 270. 44
Net Farm Income in 1972	(I_{t-1})	NT $	47, 761. 23	37, 872. 38
Ratio of Net Nonfarm Wages to Net Farm Income	(Wn/I)		0. 0032	0. 0051
Ratio of Net Nonfarm Wages[a] to Lag Net Farm Income	(Wn/I_{t-1})		0. 0039	0. 0080
Percent of Agr. Population to Total Population in the Twps	(C)	Percent	63. 13	14. 08
Average Schooling Years of Adults in a Family	(S)	Years	6. 93	1. 75
Number of Adults in a Family	(A)	Persons	4. 74	1. 82
Ratio of Adults to Total Family Persons[a]	(A_r)		0. 62	0. 15
Stock of Farm Machinery per Ha.	(M_h)	NT $	10, 722. 76	11, 354. 80
Farm Land	(N_t)	Hectares	1. 54	1. 18
Multiple Cropping Index[a]	(X)		190. 38	60. 51
Crop Land	(N_c)	Hectare	2. 80	2. 24
Rice Farms	(D_0)	Percent	50. 75	
Vegetable & Tobacco Farms	(D_1)	Percent	8. 21	—
Fruit Farms	(D_2)	Percent	11. 55	—
Other Crop Farms	(D_3)	Percent	13. 68	—
Livestock Farms	(D_4)	Percent	15. 81	—

[a]These variables were tested in alternative equations but the regression results are not reported in this paper because they did not produce "better" estimates. More information on these variables is available from Hu.

Table 3. Distribution of Sample Farms by Off-Farm Man-Days and by Farm Size, Taiwan, 1973

Farmland Owned (hectares)	Off-Farm Man-Days					
	less than 100	100—299	300—499	500—699	700 or more	Subtotal
	Number of Farms					
less than 0.5	2	10	15	10	3	40
0.5—0.99	10	24	24	11	8	77
1.0—1.49	20	22	27	15	2	86
1.5—1.99	18	17	8	8	7	58
2.0—2.49	9	5	4	1	0	19
2.5—2.99	7	0	2	2	1	12
3.0 or more	16	9	8	3	1	37
Subtotal	82	87	88	50	22	329
Percent of total farms	24.9	26.4	26.8	15.2	6.7	100.0

off-farm an average of 380 man-days in 1973 compared to 268 man-days for the "comparatively large" farmers. According to the dummy variables method, the coefficient of W_n/I is significantly different between the two regressions. The off-farm labor supply elasticity with respect to W_n/I is larger (0.129) for small farmers than for large farmers (0.027). Thus, small farmers were more responsive to off-farm wage rates than large farmers.

The coefficient of C, the percentage of agricultural population to total population in the township was included as a proxy for commuting costs. It was not statistically significant but does have the expected sign. This result suggests that commuting cost has little influence on the off-farm labor supply in Taiwan. Two factors may explain this result. First, the country is small with much industry located in rural areas so commuting distances are short. Second, a lack of detailed survey data on commuting distance, cost and mode of transport by rural households precluded use of actual costs in the model. Commuting cost might be an important factor in other countries less confined geographically and/or where actual commuting costs could be calculated.

The coefficient of average schooling years of adults in a family, S, is significant and has the expected sign. The labor supply elasticity with respect to this variable exceeds one and a one-year increase in schooling is associated with an increase of 47 more days of off-farm work.

The coefficient of A, the number of adults in a family, is significant and has the expected sign. The elasticity of this variable is slightly less than one and one additional adult per family will increase off-farm work by 59 man-days per year. Although not shown in Table 4, similar results were obtained for the variable, A_R, ratio of adults to total family persons.

The stock of farm machinery per hectare, M_h, has a significant coefficient and has the expected positive sign.

The farm land variable, N_f, also has the expected positive sign and is significant. A one hectare increase in farm land owned will decrease off-farm work by 55 man-days per year. Similar results were obtained with the variable cropland, N_c, in an alternative equation not reported here.

Table 4. Regression Results and Elasticities of Off-farm Labor Supply, Taiwan, 1973(Total Sample)[a]

Independent Variable	Regression Coefficient	t-Value	Elasticity at Mean Value
Constant	−241. 708	4. 010**	—
W_n/I	5, 016. 754	3. 117**	0. 052
C	−0. 507	0. 832	0. 104
S	47. 229	9. 761**	1. 063
A	59. 007	11. 618**	0. 908
M_b	0. 005	6. 542**	0. 178
N_f	−55. 108	7. 336**	−0. 275
D_1	−51. 496	1. 713*	−0. 014
D_2	−54. 360	2. 074*	−0. 020
D_3	−8. 696	0. 356	−0. 004
D_4	2. 608	0. 114	0. 013
$\bar{R}^2$	0. 639		
F-Ratio	59. 04		
D. F.	10, 318		

[a]/Linear and double logarithmic functional forms were estimated in the analysis; however, only the results from the linear model are reported here because it provides a better statistical goodness of fit.

*ᵇ Significant at the 0. 05 level.

** Significant at the 0. 01 level.

SOURCE: Larson and Hu, 1977.

The coefficients of D_1 and D_2 are significant and have the expected sign. Vegetable, tobacco and fruit farms are more labor-intensive than rice farming and provide proportionally less off-farm labor. On the other hand, livestock and other crop farms were similar to rice farms in off-farm labor supply.

This research shows that Taiwanese farmers are responsive to several factors expected to affect off-farm labor supply. Wage rates, education, family size, farm machinery, and size and type of farm are especially important in explaining the amount of time household members provide to off-farm work. Policy makers can influence some of these factors and, therefore, partially determine the extent to which off-farm work can effectively increase family income and reduce rural poverty.

IV. Policies and Programs for Assisting Small-Scale Nonfarm Firms

The previous two sections focused on the demand for labor associated with the small-scale sector and the off-farm labor supply response of rural households. The evidence available suggests that efforts to stimulate the small-scale nonfarm sector could increase labor absorption and improve rural income distribution. In this section, policies and programs for assisting the small-scale sector are discussed first, followed by a discussion of alternative policies to increase off-farm labor supply.

Elimination of the present bias toward large-scale firms may be the single most important policy to be taken in many countries to stimulate the small-scale sector. Without serious government commitment to broadly implementing this principle, little if anything, can be done which will significantly alter current development patterns.

The removal of discriminatory policies is a necessary but perhaps not sufficient condition for the emergence of a vigorous small-scale sector. Selective forms of assistance may be appropriate.[3] Improved access to credit appears to be crucial in many cases. David Kochav et al. (1974) reviewed the financial needs of small-scale industries in several low-income countries. Child and Kaneda also analyzed the capital structure and credit sources for small-scale agriculturally related firms in West Pakistan. Vepa (1971) reviewed financial problems of small-scale firms and discussed the programs employed in Asian countries to meet this need. These studies conclude that small-scale industries are usually started with personal or family savings and little borrowed capital. Expansion capital also usually

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3 For a comprehensive review of small-scale industry problems and needs, see Staley and Morse (1965) and Vepa (1971).

comes from savings. Credit for working capital is more abundant and loans from formal lenders more frequently encountered. Much of the credit used by small-scale firms, however, comes from informal sources. For example, Kochav et al. found small Korean industrial firms borrowing from the informal market with interest rates of 35 to 40 percent, while the prevailing rate for short-term loans from formal sources was 17.5 percent. In the absence of sufficient formal sources of credit, small enterprises in many countries were also found to be highly dependent upon credit from input suppliers and purchasers.

A problem in interpreting such findings is to ascertain whether the limited use of formal credit is \due to supply or demand problems. Many researchers feel the supply side may be most important and that lenders are reluctant to lend to small farms. First, risk may be higher since small-scale firms typically have few reserves to withstand poor market conditions or interruptions in production. Second, profit potential may be less for small loans. Administrative costs tend to be high for small loans, as a portion of lending costs are fixed and are independent of loan size. Small firms are heterogeneous and widely dispersed so it is difficult for the lender to develop the kind of familiarity characteristic of lending to larger firms. Furthermore, larger firms frequently hold large deposits with the lender which can be lent out to increase the lender's earnings.

Credit rationing presents an alternative explanation of limited formal credit use by small-scale firms. The current large-scale capital-intensive bias may destroy production incentives for existing small-scale firms and impede the creation of new ones; thus, there may be little demand for credit. Furthermore, complex and unfamiliar lending procedures by formal lenders may raise borrowing costs for small firms so high that informal credit is actually cheaper.[4] Informal lenders lend quickly, require less documentation, and lend for a variety of purposes so frequently they are a preferred source of credit. Borrowing from suppliers and purchasers may be costly, but may offer an advantage by assuring a reliable supply of inputs and more stable markets.

Changes in rural financial markets could remove some of the supply and demand constraints for credit facing small-scale firms. Usury laws and other credit controls must be examined for their impact on lender behavior. Interest rates in many countries are fixed at such low levels that commercial banks cannot cover lending costs on small loans.[5] Thus, lenders impose noninterest costs on small

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4 Adams and Nehman (1978) argue that borrowing costs for formal credit for small farmers are high. Thus they are encouraged to use what appears to be more expensive informal credit.

borrowers to raise the real return from loans as well as discourage some applicants. Furthermore, the lack of innovativeness by bank management regarding small-industry lending may disappear if this type of business was made more profitable. Kochav *et al.* report that some countries have attempted to make small-scale loans more attractive by reducing default risks through guarantee funds. Others have established special funds and rediscount arrangements. Still others have requested or directed commercial banks to increase small loan activities. In Korea, for example, commercial banks were requested to direct 30 percent of their lending to small and medium-sized enterprises employing 5 to 200 workers.

In spite of these efforts, commercial bank lending to small-scale firms continues to be marginal in many countries so other solutions have been proposed. Many countries have development banking institutions with potential for expansion in size and function. They have experienced staff and they also have access to domestic and external funds. As a result, it has been proposed that a special unit be created to service small-scale enterprises. A problem with this proposal is that these lenders are geared to clients borrowing large amounts frequently at concessional interest rates. It is feared that it would be difficult for them to give adequate priority to smaller clients.

Specialized small industry financing institutions represent a third alternative method to service small-scale firms. Japan created several specialized institutions in the 1940's and 1950's, including the Central Bank for Commercial and Industrial Cooperatives and the Small Business Finance Corporation; Taiwan has a Chinese Development Corporation; and Korea has a Medium Industry Bank While these institutions have increased the supply of funds to small firms, similar efforts in other countries have been less successful due to the limited number of branches located in rural areas, interest rate policies, and the lack of competent staff.

Other types of special assistance for small-scale firms are being provided in some countries. These include: (1) preparation of financial plans and loan applications to lenders, (2) organizing systems to acquire and distribute raw materials and equipment, (3) preparation of projects for expansion and modernization, and (4) production management and control. These services are made available through supervised lending programs or through special institutions created

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5 Gonzalez–Vega (1976) argues that subsidized interest rates discourage lending to small farmers. Raising interest rates may actually encourage more small farmer lending by commercial banks. Araujo and Meyer (1977) argue that farm credit distribution in Brazil was distorted due to interest rate controls.

for technical assistance and extension activities. Industrial estates have been created in several countries, especially India, to attract industry by developing land, infrastructure, services and occasionally even building factory shells.[6] The Korean Saemaul or new village movement includes development of estates, construction of plants, provision of equipment and work capital, tax concessions, and establishment of home industry centers to assist rural cottage industries (Lodge and Auciello, 1975).

Policies to increase off-farm labor supply are dependent upon additional research to clarify the determinants of labor supply. If the results reported above for Taiwan represent the situation in other countries, some policy implications are clear. Increased farm mechanization is associated with more off-farm work. Many countries have feared mechanization because of its potential displacement of farm labor. However, a selective pattern of farm mechanization designed to release peak labor constraints could release labor for both increased agricultural production and off-farm work. Johnston and Kilby emphasize how the unimodal size distribution of Japanese and Taiwanese farms facilitate a broad based mechanization strategy where power tillers and other implements are produced by local industries. On the other hand, countries with a bimodal farm distribution that choose a capital-intensive agricultural strategy are more likely to import machines. Therefore, the careful introduction of appropriate mechanical technology can increase demand for small industry products as well as increase the supply of off-farm work by farm families.

Education levels were found to influence off-farm work in Taiwan. Thus, it would appear that increased rural educaion could provide several benefits. First, education levels are frequently associated with decision to migrate due to the higher probability of obtaining employment and earning a higher income. Secondly, education levels of farmers have been linked to increased productivity and adoption of new farming techniques. Thirdly, education may also increase the probability of members of farm households to obtain part or full-time off-farm work and increase their preference for such employment.

Transportation and commuting costs reduce the net wage received in off-farm work. Improvements in transportation, therefore, would increase net wages and may encourage people to commute

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6 Kochav et al. conclude that on the whole industrial estates have not been very cost effective in promoting small-scale industries. Mars (1975) analyzed four estates in Kerala, India and found they were recruiting entrepreneurs from sophisticated rather than low status social groups.

further and work a longer work period off the farm. Investments in rural transportation are often justified because of the expected decrease in cost for farm marketing, but the impact on the supply of off-farm work may also be substantial. Likewise, industrial decentralization increases the availability of jobs and reduces commuting costs by bringing jobs closer to the farms.[7] Labor response in Taiwan suggests that a sizeable pool of labor can be utilized in rural areas at wage rates lower than in urban areas.

V. Concluding Remarks

The evidence for increased emphasis on small-scale rural enterprises is substantial and appealing. The benefits include more efficient use of scarce capital, greater labor absorption, improved rural income distribution, and decreased congestion and social problems in urban centers. Much remains to be learned, however, before the consequences of such a strategy can be fully understood. It is not exactly clear what needs small firms have and how public policy should best address them. Undoubtedly, the answers will vary from country to country. The dynamic effects on the farm sector also need to be better understood. Japan's experience suggests an emerging dilemma when increased part-time farming is associated with a decline in agricultural productivity and farm work is increasingly performed by women, children and old people, while young men work in off-farm jobs. When biological technologies are fully exploited and continual increases in farm incomes more difficult to achieve, farm enlargement may be the only way to assure a dynamic, progressive agriculture. A strategy involving small-scale farms and large amounts of off-farm work carries the risk of an unproductive agriculture. Far too many labor surplus countries, however, appear to have ignored the successful experience of some Asian countries and thereby have failed to achieve balanced growth. Economic problems at this stage in the development of many low-income countries require abandoning the large-scale, capital-intensive bias, and substituting increased attention on small-scale farm and nonfarm firms. The benefits would include increased employment, reduced drain on capital and foreign exchange markets, and improved interpersonal and interregional income distribution.

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7 Proponents of large rural industrial projects have frequently been surprised to find that in-migration was less than expected because local persons, previously not in the labor force, absorbed most of the jobs created.

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